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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
PERUNGAVOOR, SATHYANARAYA V	
ART UNIT	PAPER NUMBER
2625	

DATE MAILED: 03/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/993,735	SEFCIK, JASON	
	Examiner	Art Unit	
	Sath Perungavoor	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 November 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *1-45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 November 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/27/2001*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1, 2, 4, 6, 16, 17, 19, 21, 31, 32, 34 and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by Lo et al. (hereinafter "Lo") [US 5,062,056].

Regarding claim 1, Lo discloses all the claim limitations, as follows:

A method for estimating a position of moving objects in a set of image data, comprising the steps of: *[Figure 1]*

identifying a position of an object in a first frame of image data acquired at a first time; *[Column 5 Lines 1-4; The precisely defined target trackpoint is a positional marker of the target (i.e. object) in the reference image (i.e. first frame).]*

determining that the object is undetected in a second frame of image data acquired at a second time; *[Column 5 Lines 34-36; Center of track gate feature would meet this limitation, because once target is not in the center of the crosshairs (i.e. 318 on Figure 3) the object would be lost or undetected.]*

estimating movement of the object to determine its estimated position in the second frame of image data using at least one of velocity and acceleration of the object and time between frames of image data; and *[Column 5 Lines 37-40; Cited reference estimates the target trackpoint using velocity and the scan time differential.]*

using the estimated position to determine a position of the object in a third frame of image data acquired at a third time. *[Column 6 Lines 37-40; Generated trackpoint is used in later calculations for subsequent images.]*

Regarding claim 2, Lo discloses all the claim limitations, as follows:

The method of claim 1, wherein the step of identifying comprises the step of : maintaining a database of positional values of the object. *[Column 5 Lines 1-4 and 110 on Figure 3; Positional values are stored in the reference memory.]*

Regarding claim 4, Lo discloses all the claim limitations, as follows:

The method of claim 1, wherein the step of determining comprises the step of : retrieving positional values of the object from a database of positional values. *[Column 5 Lines 1-4 and 110 on Figure 3; Positional values are stored in the reference memory and used in computations.]*

Regarding claim 6, Lo discloses all the claim limitations, as follows:

The method of claim 1, wherein the step of estimating comprises the step of: calculating difference values between the first frame of image data and the second frame of image data for positional values of the object. *[Column 5 Lines 48-51]*

Regarding claims 16, 17, 19, 21, 31, 32, 34 and 36, all claimed limitations are set forth and rejected as per discussion for claims 1, 2, 4 and 6.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 3, 5, 7-10, 18, 20, 22-25, 33, 35 and 37-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lo in view of Zwirn et al. (hereinafter "Zwirn") [US 4,474,343].

Regarding claim 3, Lo discloses the claim limitations as set forth in the discussion for claim 1.

Lo does not explicitly disclose the following claim limitations:

The method of claim 1, wherein the step of identifying comprises the step of: maintaining a database of stabilization values of the object.

However, in the same field of endeavor Zwirn discloses the deficient claim limitations, as follows:

> The method of claim 1, wherein the step of identifying comprises the step of: maintaining a database of stabilization values of the object. *[Column 2 Lines 20-29 and 36/40 on Figure 1; Cited reference stores jitter (i.e. stabilization) values in memory.]*

It would have been obvious to one with ordinary skill in the art at the time of invention to modify the teachings of Lo with Zwirn to further meet the claim limitation to use the stabilization values to correct jitter effect that impairs the ability to maintain a well centered crosshair [Column 1 Lines 35-38].

Regarding claim 5, Lo discloses the claim limitations as set forth in the discussion for claim 1.

Lo does not explicitly disclose the following claim limitations:

> The method of claim 1, wherein the step of determining comprises the step of: retrieving stabilization values of the object from a database of stabilization values.

However, in the same field of endeavor Zwirn discloses the deficient claim limitations, as follows:

The method of claim 1, wherein the step of determining comprises the step of: retrieving stabilization values of the object from a database of stabilization values. *[Column 2 Lines 20-29 and 36/40 on Figure 1; Cited reference stores jitter (i.e. stabilization) values in memory and uses it in computations.]*

It would have been obvious to one with ordinary skill in the art at the time of invention to modify the teachings of Lo with Zwirn to further meet the claim limitation to use the stabilization values to correct jitter effect that impairs the ability to maintain a well centered crosshair [Column 1 Lines 35-38].

Regarding claim 7, Lo discloses the claim limitations as set forth in the discussion for claim 1.

Lo does not explicitly disclose the following claim limitations:

The method of claim 1, wherein the step of estimating comprises the step of: calculating difference values between the first frame of image data and the second frame of image data for stabilization values of the object.

However, in the same field of endeavor Zwirn discloses the deficient claim limitations, as follows:

The method of claim 1, wherein the step of estimating comprises the step of: calculating difference values between the

first frame of image data and the second frame of image data for stabilization values of the object. *[Column 4 Lines 51-54; Cited reference discloses the subtracting the jitter from the original signal. When combined with Lo's invention, it defines this limitation. Combination of Lo and Zwirn results in* $(Positional_1\text{-}Jitter_1)$-$(Positional_2\text{-}Jitter_2)$ *and* $(Position_1\text{-}Stabilization_1)$-$(Position_2\text{-}Stabilization_2)=(Position_1\text{-}Position_2)$-$(Stabilization_1\text{-}Stabilization_2)$*.]*

It would have been obvious to one with ordinary skill in the art at the time of invention to modify the teachings of Lo with Zwirn to further meet the claim limitation to use the stabilization values to correct jitter effect that impairs the ability to maintain a well centered crosshair [Column 1 Lines 35-38].

Regarding claim 8, Lo discloses the claim limitations as set forth in the discussion for claim 1.

Lo does not explicitly disclose the following claim limitations:

The method of claim 1, wherein the step of estimating comprises the step of: subtracting stabilization difference values from positional difference values for each frame of image data to generate stabilized positional difference values.

However, in the same field of endeavor Zwirn discloses the deficient claim limitations, as follows:

> The method of claim 1, wherein the step of estimating comprises the step of: subtracting stabilization difference values from positional difference values for each frame of image data to generate stabilized positional difference values. *[Column 4 Lines 51-54; Cited reference discloses the subtracting the jitter from the original signal. When combined with Lo's invention, it defines this limitation. Combination of Lo and Zwirn results in* $(Positional_1\text{-}Jitter_1)$-$(Positional_2\text{-}Jitter_2)$ *and* $(Position_1\text{-}Stabilization_1)$-$(Position_2\text{-}Stabilization_2)$=$\underline{(Position_1\text{-}Position_2)\text{-}(Stabilization_1\text{-}Stabilization_2)}$*.]*

It would have been obvious to one with ordinary skill in the art at the time of invention to modify the teachings of Lo with Zwirn to further meet the claim limitation to use the stabilization values to correct jitter effect that impairs the ability to maintain a well centered crosshair [Column 1 Lines 35-38].

Regarding claim 9, Lo discloses all the claim limitations, as follows:

> The method of claim 8, wherein the step of estimating comprises the step of: determining a data time interval using a time between frames

of image data. *[Column 5 Lines 50-51; Time interval between scans (i.e. data) is determined.]*

Regarding claim 10, Lo discloses all the claim limitations, as follows:

The method of claim 9, wherein the step of estimating comprises the step of: determining an absolute displacement of the object by summing the stabilized positional difference values over the data time interval. *[Column 5 Lines 48-51; The interval is only one, hence the sum is self contained.]*

Regarding claims 18, 20, 22-25, 33, 35 and 37-40, all claimed limitations are set forth and rejected as per discussion for claims 3, 5 and 7-10.

3. Claims 11-15, 26-30 and 41-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lo in view of Zwirn as applied to claim 10 above, and further in view of Browne [NPL document, see PTO-892].

Regarding claim 11, Lo and Zwirn disclose the claim limitations as set forth in the discussion for claim 10.

Lo and Zwirn do not explicitly disclose the following claim limitations:

The method of claim 10, wherein the step of estimating comprises the step of: calculating a constant acceleration of the

object during the data time interval using a predetermined acceleration function.

However, in the same field of endeavor Browne discloses the deficient claim limitations, as follows:

The method of claim 10, wherein the step of estimating comprises the step of: calculating a constant acceleration of the object during the data time interval using a predetermined acceleration function. *[Equations in 4.4 and 4.5 on Page 41; Disclosed "a" meets this limitation.]*

It would have been obvious to one with ordinary skill in the art at the time of invention to modify the teachings of Lo and Zwirn with Browne to further meet the claim limitations, since the disclosed equations are commonly used to calculate velocity, acceleration and position. Furthermore, Lo's invention inherently uses these equations and does not disclose it explicitly.

Regarding claim 12, Lo and Zwirn disclose the claim limitations as set forth in the discussion for claim 10.

Lo and Zwirn do not explicitly disclose the following claim limitations:

The method of claim 11, wherein the step of estimating comprises the step of: calculating a current velocity of the object

during the data time interval using a predetermined velocity function.

However, in the same field of endeavor Browne discloses the deficient claim limitations, as follows:

> The method of claim 11, wherein the step of estimating comprises the step of: calculating a current velocity of the object during the data time interval using a predetermined velocity function. *[Equations in 4.4 and 4.5 on Page 41; Disclosed "v" meets this limitation.]*

It would have been obvious to one with ordinary skill in the art at the time of invention to modify the teachings of Lo and Zwirn with Browne to further meet the claim limitations, since the disclosed equations are commonly used to calculate velocity, acceleration and position. Furthermore, Lo's invention inherently uses these equations and does not disclose it explicitly.

Regarding claim 13, Lo and Zwirn disclose the claim limitations as set forth in the discussion for claim 10.

Lo and Zwirn do not explicitly disclose the following claim limitations:

> The method of claim 12, wherein the step of estimating comprises the step of: calculating an estimated movement of the

object from the constant acceleration and current velocity using a predetermined position function.

However, in the same field of endeavor Browne discloses the deficient claim limitations, as follows:

> The method of claim 12, wherein the step of estimating comprises the step of: calculating an estimated movement of the object from the constant acceleration and current velocity using a predetermined position function. *[Equations in 4.4 and 4.5 on Page 41; Disclosed "r" meets this limitation.]*

It would have been obvious to one with ordinary skill in the art at the time of invention to modify the teachings of Lo and Zwirn with Browne to further meet the claim limitations, since the disclosed equations are commonly used to calculate velocity, acceleration and position. Furthermore, Lo's invention inherently uses these equations and does not disclose it explicitly.

Regarding claim 14, Zwirn discloses all the claim limitations, as follows:

> The method of claim 13, wherein the step of estimating comprises the step of: calculating an actual movement of the object by adding stabilization difference values to the estimated movement of the object. *[Column 2 Lines 20-29; Combination of* Zwirn and Lo meets this limitation.*]*

Regarding claim 15, Lo discloses all the claim limitations, as follows:

> The method of claim 14, wherein the step of estimating comprises the step of: calculating an estimated position of the object in the second frame of image data by adding the actual movement of the object to the position of the object in the first frame of image data. *[Column 7 Lines 10-20; U_{N-K} represents first frame and k.V represents the actual movement.]*

Regarding claims 26-30 and 41-45, all claimed limitations are set forth and rejected as per discussion for claims 11-15.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sath Perungavoor whose telephone number is (703) 306-4116. The examiner can normally be reached on Monday to Friday from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta whose telephone number is (703) 308-5246, can be reached on Monday to Friday from 9:00am to 5:00pm. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Art Unit 2625
March 19, 2005

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